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THE EFFECT OF APPARENT PERFORMANCE AND GROUP

SUCCESS ON CHANGES IN STATUS

WITHIN A GROUP STRUCTURE

by

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and James J. Taylor
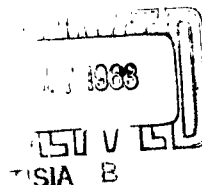
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Teams often shift members to streng.thin perfcrmance at specific positions when goal attainment requires that positions carrying the most responsibility be occupied by the most skillful members. Past studies in this series (Zajonc, 1962; Zajonc and Taylor, 1962) demonstrate two relevant facts: Members compare each other's performance and they respond to changes in responsibility. They, therefore, are likely to be aware whether a specific level of performance fits a given amount of responsibility. It follows that in a cooperative situation a group structure based on differences in responsibility will be reorganized when the value of its outcome is reduced by a member whose performance is not commensurate with his responsibility.

Given a certain distribution of ability among members, the difference between the ability of any occupant and the ability specified for his status by task requirements should be a minimum if the value of the outcome is to be maximized. In order to maximize scoring, a baseball coach is 'required' to place his most effective hitter in the clean-up slot. Traditionally, performance in this position determines scoring to a greater extent than does the performance in any other batting position. When the clean-up man's batting slumps just below that of the next ranking hitter, a change in the line-up must be made. Moving the member from the clean-up slot into the next most important batting position will restore the team's scoring potential. Changes in status, then, are part of a chain of events which begins with an incongruity between an occupant's manifest ability and some level of performance specified for his status by task requirements.

The incongruity, however, may be only partly reduced if the member is moved but the shift is not to the status the requirements of which best fit his performance. Until such a congruence occurs the group cannot expect its efforts to bring the fullest rewards. For example, the clean-up man

may experience a drastic performance decrement, say, from first ranked
hitter to tenth. To realize its scoring potential, the team must now
bench this player. Shifting him from clean-up to another position in
the line-up is an appropriate change since the value of the outcome for
the team is improved. However, it is less than the most profitable change.
Benching is the optimum change--since it maximizes the value of the team's
outcome.

Frequently the group task not only specifies performance criteria
peculiar to a status but also imposes minimal criteria of competence on
members as a whole, irrespective of position. When some number of members
fail to achieve these criteria, group success decreases. Declines of this
type result from a general failure in performance. A drop in group success,
therefore, is relatively independent of whether members have been allocated
to slots so that the difference in apparent and required performance at
any status is a minimum. Even when there is a perfect positive correlation
between abilities and status, group success may still decline if the
absolute levels of performance of some members are below the standard of
minimal competence. A common belief exists, however, that general
performance decrements which reduce group success may initiate radical
changes in status. Change is expected because it somehow relieves anxiety
or satisfies the panicky feeling that "something's got to be done!" Our
manager may be faced by a general decline in his pitching staff, but buying
new talent is precluded. The owners and the fans are in an uproar.
Although the ordering of the pitchers by some criterion of effectiveness
is the same as it was before their decline in performance began, nevertheless,
we may foresee much shifting of pitchers from 'reliefer' to 'starter' and
vice versa. Logically, such changes in status are unwarranted unless

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accompanying the overall decline there is a reversal in the relative
effectiveness of certain 'starters' and 'reliefers'. Even given the
presence of such reversal, we cannot be sanguine about the likelihood
of rapid appropriate and optimum changes. The hectic atmosphere produced
by a serious decline in group success may divert attention and obscure
such reversals, especially if they are not blatant. So much concern may
be given to producing overall improvement that an appropriate change in
status is too long delayed.

While common to a wide range of group situations, there is little
consensus among sports fans or social scientists about the antecedents or
consequences of such status changes and their attendant phenomena. For
example: When there is less than the optimum fit between group structure
and task requirements, what factors will facilitate and what will hinder
appropriate and optimum movement among positions? How does group success
interact with such an incongruity to affect status change? And how does
the process leading to a lowering of status differ from one producing
an elevation in status? The purpose of the present study is to answer
some of these questions. More specifically it attempts (a) to examine
processes which facilitate or interfere with an exchange of members among
positions when such change is appropriate; and (b) to discover how pressures
to change are experienced at different positions within the structure in
terms of the member's efforts to effect change.

In the present study cooperative or promotively interdependent groups
(Deutsch, 1949) are structured in a hierarchical manner based on the amount
a member at a particular rank can contribute to the group outcome. The
task requires that consistently successful performance increase as rank
or status increases. At the same time there is a minimum performance
criterion which applies to the group as a whole and which determines group

accompanying the overall decline there is a reversal in the relative

effectiveness of certain 'starters' and 'reliefers'. Even given the

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or status increases. At the same time there is a minimum performance

criterion which applies to the group as a whole and which determines group

success. Incongruities between performance and task requirements are produced experimentally at different statuses under different conditions of group success. Observations are made of (a) how rapidly an appropriate change is made, (b) how rapidly the optimum change is made, and (c) what differences occur among statuses in preference for change.

This report is a preliminary analysis of the findings on apparent performance and status change. A subsequent report will consider the effects of incongruities and status change on actual performance.

Method

Subjects. The _S_s were 240 male volunteers recruited at The University of Michigan. All were paid $1.25 per hour for participating in the experiment.

Apparatus. The Group Reaction Time Apparatus which was used in the present study is described in greater detail elsewhere (Zajonc, 1961). We shall therefore limit the present description to its main operational features.

The apparatus consists of seven individual panels and a console operated by _E_ for the purpose of controlling feedback and time intervals. Since in the present study only four-man groups were used, three of the panels were removed. An illustration of an individual panel is shown in Fig. 1.

Figure 1

Individual Panel
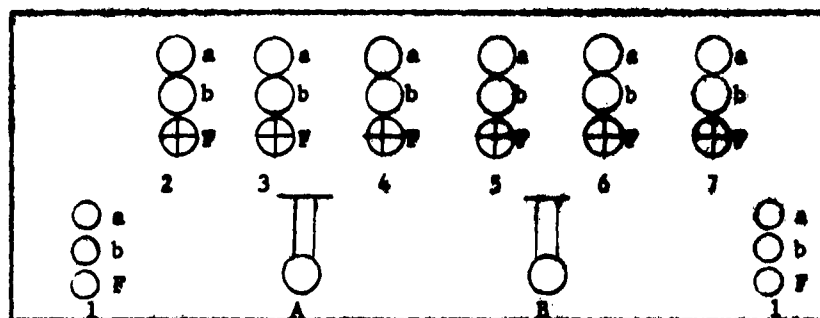
Each panel contains two reaction keys, marked A and B, and seven stimulus displays marked 1 through 7 and one marked G. The stimulus display located in the lower left part of the panel is the $\underline{S}$'s own display. The others marked by other arabic numerals give feedback about the performance of other $\underline{S}$s. The display marked G gives feedback about the team as a whole. Each stimulus display consists of two stimulus lights, marked a and b, and a red failure light marked F. Lights a and b are stimulus lights which are turned on by the $\underline{E}$. They are turned off by the $\underline{S}$ when he presses the appropriate key (A or B). In the present experiment simple reaction times were observed. In all conditions only one stimulus (1a), one response (A) and one failure signal (F-1) were utilized. No other signals were operative. Instructions led each $\underline{S}$ to believe that if he pressed the appropriate key before the failure light went on, his stimulus light would go off, and his failure light be inhibited. However, the appearance of the failure light was controlled by $\underline{E}$ according to a fixed schedule described below.

$\underline{S}$s sat within 3-4 feet of each other and could easily observe each other's panels and the appearance of the failure lights.

Procedure. All observations were made on groups of four $\underline{S}$s. The experiment involved not only the assessment of preferred status assignments but also the observation of individual and group reaction time (RT's). As noted earlier, RT data will be analyzed in a subsequent report. Individual baseline data were obtained first. $\underline{S}$s working as individuals were instructed to press their reaction keys upon the onset of a stimulus light on their panels. After a ready signal a stimulus light was turned on by $\underline{E}$. The intervals between the ready

signal and the stimulus light were 3, 4, 5, or 6 seconds distributed

equally and randomly over trials. The stimulus light was turned off

by the S's response and his RT recorded by E. Following forty

training trials in 20-second intervals, and 2-minute intervals

following every fifth trial, Ss were asked to privately rank each

other in terms of RT speed. This served to orient them to individual

differences in performance. The Ss were then told that their task

would be to work cooperatively as a group in playing a simple game.

The game was described as follows:

> "Fifty similar groups will be run in this study of
> team performance. Each group will have the same oppor-
> tunity to earn a number of points. At the end of the
> study, the four members of the group with most points
> will each receive $10.00. In order to receive points
> at least two or more members must press quickly enough
> to beat the red 'failure' light. The latter will appear
> on a member's panel when the member does not press
> within a fixed interval after the signal (the red light
> remained on for twelve seconds).* On each trial, if two
> or more members beat the failure light, the group is
> elgible to receive points (criterion for group success).
> However, since each member will be assigned a different
> number of points to contribute to the group total, the
> amount of points the group receives will depend on
> which members beat the failure light. (Thus, to obtain
> the maximum number of points the group should place the
> most consistently successful member in the position
> which contributes the largest number of points, the
> second most successful in the position contributing the
> second largest nember of points, and so on. Each
> position, then, had a certain level of performance
> required by the task). If a member does not beat the
> failure light, he can contribute nothing. If only one
> member is successful, the group receives no points
> regardless of the number he is assigned."

E then explained that after each block of five trials the members would

be permitted to vote on whether they wanted to change the way the points had

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* information in parentheses was not included in the instructions.

been assigned. Each S was given a sheet on which he was to privately record his vote. The sheet was divided into two sections each running the length of the paper. One section contained fifteen "yes - no" pairs. If S wanted to change the assignment of points he was to encircle "yes"; if no change was desired, he encircled "no." The second section contained fifteen rows of four numbers which correspond to the seat numbers affixed to the table in front of each S's panel. After voting, S was to write under each number the amount of points that should be assigned to that position. If S voted "no" he assigned the same distributions of points that existed on the preceding block. If he voted "yes," S was to indicate what redistribution of points seemed appropriate. All voting sheets were to remain folded with the votes and preferred point assignments hidden until the end of each block. Ss would then vote and record their preferred point assignments, refold the sheets and place them in the center of the table. E would take the sheets and inform Ss whether or not there was a unanimous "yes" vote. When such unanimity occurred Ss would be given a few minutes to discuss and agree on what changes to make. In front of each seating position there would be a counter which indicated the number of points the member could contribute. Upon reaching agreement Ss were to make the change by shifting the appropriate counters among members. It was made clear that in discussing how to change, Ss were in no way committed to the point assignments they had written on the voting sheets. However, once unanimity was reached and discussion permitted, some change was required. Within these limits Ss were free to make whatever change was agreed upon. Although votes would be taken after each block of five trials, assurances were given that there would be less than fifteen blocks as the voting sheets might suggest. E explained that it was necessary that Ss not know how many blocks were to be given.

When $\underline{E}$ was assured that the voting procedure was understood, $\underline{Ss}$ were told that they would have one practice block to become accustomed to working against the red light. After this task $\underline{E}$ distributed the counters which indicated the number of points each $\underline{S}$ could contribute to the group's total. The counters were labelled "100," "80," "40," and "20." On the practice block (before points were assigned) and on each of the three succeeding blocks (after points were assigned) $\underline{E}$ controlled the appearance of the red light in the following manner: $\underline{Ss}$ with 100 points (rank 1 or R-1) were successful on 90% of the trials, $\underline{Ss}$ with 80 points (R-2), 70% of the trials, $\underline{Ss}$ with 40 (R-3) points, 50% of the trials, and $\underline{Ss}$ with 20 points (R-4), 30% of the trials. The group success criterion (at least two members must beat the red light) was met on every trial except one over these four blocks. Within these constraints the distribution of individual failures within each block was random. The first four blocks, thus, served to reinforce the initial distribution of points. On block five and thereafter the pattern of individual and group success was manipulated to form four experimental conditions:

Condition I. On block five $\underline{Ss}$ in R-1 rank were reduced to 40% success. All other ranks were brought to 60% success. During block six R-1 was reduced to 20% success and held there for the remainder of the experiment. All other ranks remained at the 60% level. Group success was continuous, occurring on every trial.

Condition II. This was identical to condition I except that group success was intermittent, occurring on only 40% of the trials in each block.

Condition III. On block five, R-4 became successful on 60% of the trials while $\underline{Ss}$ in all other ranks were successful 40% of the time. R-4

moved to 80% success during block six and continued at this level for the rest of the experiment. All other ranks remained at the 40% level.

Condition IV. This was identical to Condition III, except that group success was intermittent, occurring on only 40% of the trials in any blocks.

Two control conditions were run for eleven blocks in which no change occurred in the relative success of members. Condition V and Condition VI experienced the same schedule of individual and group success as all other groups on blocks one to four. Groups in Condition V remained on this schedule for the next seven blocks. However, on block five, Ss in Condition VI were moved to 40% group success for the ensuing seven blocks. On these blocks R-1 remained at 80% success, R-2 at 60% success, R-3 at 40% and R-4 at 20%. Table 1 depicts the group and individual success schedules in the different conditions.

It was important to minimize the possibility Ss might learn that their actual RT was unrelated to the appearance of the failure light. To establish a set which would mask the pre-scheduled nature of success and failure the following was done: 1) Pilot studies indicated that individual differences in RT are larger during the early part of the procedure. In fact, on baseline trials in a few groups one member's hand and finger movement was visibly slower than the rest. Thus, the experiment induction was most likely to fail during early trials when a visibly slow member succeeds. It was decided that initial rank or status (the number of points assigned by E) would correspond to the member's rank on baseline performance, the fastest man being given the highest status, the second fastest, second highest status, and so on. This meant that during the first four blocks in which performance feedback reinforced the initial hierarchical structure, faster members

Table 1

Schedule of success (x) and failure (0) for individual ranks (R) and for groups (GS)

A. Blocks 1 - 4[*]: Reinforcement of Initial Structure

	Trial																			
R	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	x	x	x	x	x	x	x	O	x	x	x	x	x	x	x	x	x	O	x	x
2	x	x	O	x	x	O	x	x	O	x	x	O	x	x	x	x	x	x	O	O
3	x	x	O	x	O	x	O	O	x	O	O	x	x	O	x	O	O	x	O	x
4	O	x	x	O	O	O	O	x	O	O	x	O	O	x	O	O	x	O	O	O
GS	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	O	x

* Common to all conditions. Repeated on blocks 5 - 11 in Condition V.

B. Changes in reinforcement following fourth block.

Condition I: A decrease in success for R-1 with continuous group success[**]

	Trial																			
R	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	x	O	x	O	O	O	O	O	x	O	O	O	O	O	x	O	x	O	O	O
2	x	x	O	x	O	x	O	x	O	x	O	x	x	x	O	O	x	O	x	x
3	O	x	x	O	x	x	x	O	O	x	x	O	x	x	O	x	O	x	O	x
4	x	O	O	x	x	O	x	x	x	O	x	x	O	O	x	x	O	x	x	O
GS	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

** Last three schedules were repeated until criterion was reached.

Table 1 continued -

Condition II: A decrease in success for R-1 with intermittent group success**

R	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	x	0	x	0	0	0	x	0	0	0	0	0	x	0	0	x	0	0	0	0
2	x	0	x	x	0	0	x	x	x	0	x	0	x	0	x	x	x	0	x	0
3	x	x	x	0	0	0	x	0	x	x	0	0	x	x	x	x	0	x	x	0
4	x	0	x	0	x	x	x	0	x	0	0	x	x	0	x	x	0	0	x	x
GS	x	0	x	0	0	0	x	0	x	0	0	0	x	0	x	x	0	0	x	0

Condition III: An increase in success for R-4 with continuous group success**

Trial

R	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	0	x	0	x	0	0	0	x	0	x	x	0	0	0	x	0	x	x	0	0
2	x	0	x	0	0	0	x	0	x	0	x	0	x	0	0	0	0	x	0	x
3	0	0	x	x	0	x	x	0	0	0	0	x	0	x	0	x	0	0	x	0
4	x	x	0	0	x	x	0	x	x	x	0	x	x	x	x	x	x	0	x	x
GS	x	x	x	x	0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

** Last three schedules were repeated until criterion was reached.

Table 1 continued -

Condition IV: An increase in success for R-4 with intermittent group success**

Trial

R	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	x	0	x	0	0	x	0	0	x	0	0	x	0	0	x	0	0	x	x	0
2	x	0	0	x	0	0	0	x	x	0	0	x	0	0	x	0	x	0	x	0
3	x	0	0	x	0	0	0	x	x	0	x	x	0	0	0	0	0	x	x	0
4	x	x	0	x	0	0	x	x	x	x	0	x	x	x	x	x	0	x	x	x
GS	x	0	0	x	0	0	0	x	x	0	0	x	0	0	x	0	0	x	x	0

Condition VI: Group success becomes intermittent while relative differences among R's remain the same.

Trial

R	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	x	x	x	0	x	0	x	x	x	x	x	0	x	x	x	x	x	0	x	x
2	0	x	0	x	x	x	0	x	0	x	x	x	0	x	0	0	x	x	x	0
3	0	x	0	0	x	0	0	x	0	x	x	0	0	x	0	0	x	0	x	0
4	0	x	0	0	0	0	0	x	0	0	x	0	0	0	0	0	0	0	x	0
GS	0	x	0	0	x	0	0	x	0	x	x	0	0	x	0	0	x	0	x	0

** Last three schedules were repeated until criterion was reached.

would succeed more frequently than slower ones. By block five it was expected that individual differences in RT would be reduced to a point where physical movement gave no discriminable cue to relative speed.

2) The instructions introducing the tasks stressed that the RT interval would be very short, that a person's RT was variable overtime, and that when one attempted to attain minimum RT such variability was not subject to voluntary control.

In Conditions I - IV the following criteria were used to terminate the procedure 1) No unanimous "yes" vote occurred within seven blocks after the experimental manipulation began, i.e., by block 11. 2) No second unanimous "yes" vote occurred within three blocks after the first change was agreed on 3) No third unanimous "yes" votes occurred within one block after the second change was agreed on Groups in Conditions V and VI, where no change was expected, were run for eleven blocks. Votes were taken at the end of each block after points were assigned to members. Upon termination of the experimental procedure all Ss filled out a questionnaire and a personality inventory. They were then given complete information about the experiment.

Results

1. <u>Changes in Status</u> In Conditions I and II an appropriate change is one which removes the S in R-1 and places him in some lower rank; in Conditions III and IV it is a change which raises in status the S in R-4. The optimum change in the former two conditions is that which places the S who is initially in R-1 in R-4; in the latter conditions, it is that which places the initial R-4 S in R-1. The mean blocks on which the first appropriate change and the optimum change occurred are shown in Table 1. One group in IV did not change during the procedure. It was arbitrarily given a score of 12 for

Table 2

Mean block on which the appropriate and the optimum change occurred.

Condition	I	II	III	IV
Appropriate change	6.5	7.8	7.3	7.3
Optimum change	7.9	9.1	7.6	9.0

the first appropriate change and 16 for the optimum change. An analysis
of variance summarized in Table 3 suggests, at a low level of confidence,
that appropriate changes occur most rapidly when R-1 is to be markedly
reduced in status and when group success is continuous. An analysis of
variance of blocks on which the optimum change occurred is summarized
in Table 4. Again at a low level of confidence, it indicates that the

Table 3

Summary of the analysis of variance of the number of blocks
before the first appropriate change in
status is made

Source	df	MS	F
Direction of change (DC)	1	6.225	∞
Group Success (GS)	1	1.725	∞
DC X GS	1	6.925	2.958*
Within	36	2.341	
Total	39		

*P<.10

optimum change is made most rapidly, regardless of direction, when group
success is continuous. In fact in Condition III, for nine of the ten
groups the first change was the optimum one.

Table 4

Summary of the analysis of variance of the number of blocks
required to attain optimum change in status

Source	df	MS	F
Direction of change (DC)	1	0.90	-
Group Success (GS)	1	14.39	2.85*
DC X GS	1	0.94	-
Within	36	5.05	-
Total	39		

*P<.10

An actual change in status, however, could be prevented by a single
member who persisted in voting "no." In Condition I, one group had a
majority (3 Ss) for change in blocks 6-8 but unanimity was not reached
until block 8; in Condition II, two groups had majorities on blocks 5
and 6, respectively, but both had to wait until block 9 for the holdout
to join them; in III, two groups had majorities on block 6 and a third
on block 5, but the former two did not attain unanimity until block 10,
the latter, until block 8; and likewise in IV, one group had a majority
on block 6 yet no unanimity until block 9. Therefore, a more valid and
more sensitive measure of strength and direction of pressures to change
may be the voting behavior of the group and their members.

The tendency to vote for a change is practically non-existent in
either control group. Thus, they are omitted in analyses of voting
behavior. The proportion of "yes" vote among controls over the eleven
blocks is shown in Table 5. In no group did a unanimous preference for
change occur. When group success is reduced on block five in Condition
VI, no increase in the frequency of "yes" votes appears. There is,

Table 5

Proportion of Ss voting for a change when no change is appropriate

Block		2	3	4	5	6	7	8	9	10	11
Condition	V	.05	.10	.08	.08	.08	.00	.08	.12	.02	.08
	VI	.08	.15	.10	.10	.08	.08	.08	.05	.10	.08

however, a marked preference for which status occupants are to be shifted when Ss recommend a change. This tendency is similar in both control conditions. Of the 50 status changes preferred in Condition V, 30% involve moving the S in R=2 to R=3; 30%, moving the S in R=3 to R=2; and 18%, moving the S in R=3 to R-4. Only 4% concern themselves with R-1 and 18% with R=4. In Condition VI, of the 74 desired shifts, 42% move the S in R=3 to R=2; 45% move the S in R=2 to R=3; while only 3% involve R-1 and 9% R=4. There are no appreciable differences among statuses in advocating change within either control condition.

An analysis of variance of the difference in the number of group members in the experimental conditions who vote for change on block four (the last block in which the initial structure is reinforced) and the number who so vote on block five (the first experimental block) indicates marked variation as a function of group success. As is evident in Figure 2 groups under continuous success respond more quickly to the necessity for status changes than groups under intermittent success. The analysis is presented in Table 6. Examining the preferences members express as to who should hold which rank over several experimental blocks adds further support to this finding. Figures 3 and 4 demonstrate that there is less reluctance to change the status of members under continuous than under intermittent group success. The analyses of variance of these two
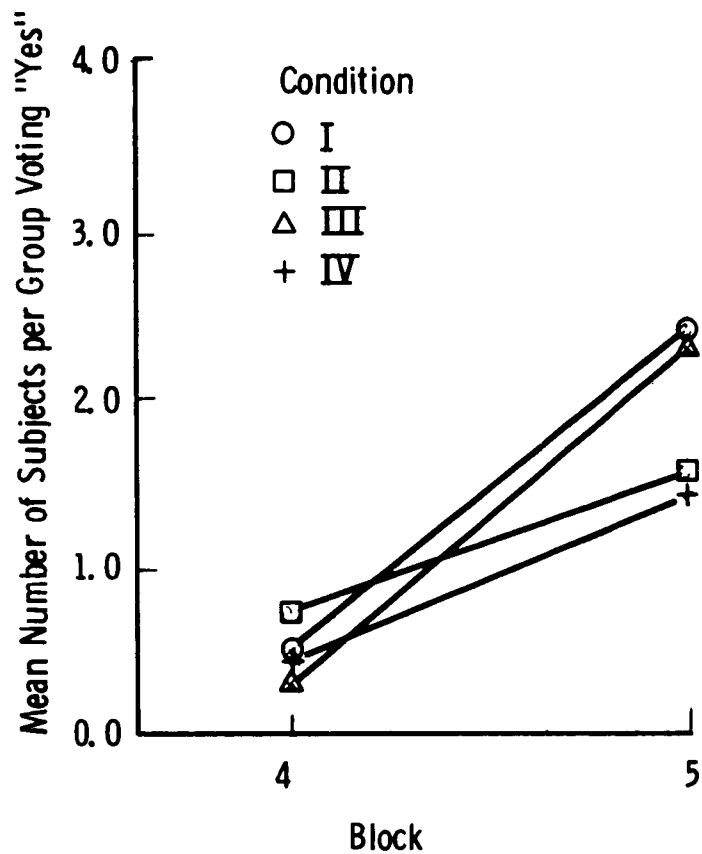
FIGURE 2.
Mean number of subjects per group who vote to change
status assignments ("yes") on the block before a
change is appropriate and on the block after a
change is appropriate.

Table 6

Summary of the analysis of variance of the differences* in number
of "Yes" votes on fourth block and fifth block.

Source	df	MS	F
Direction of Change (DC)	1	0.025	-
Group Success (GS)	1	11.025	8.877****
DC X GS	1	0.025	-
Within	36	1.242	-
Total	39		

* Difference score = Number "yes" per group on block 5 minus number
"yes" on block 4.
**** $p < .001$

sets of curves presented in Table 7 and 8 indicate that under con-
tinuous group success members not only choose to make an appropriate
change in status more rapidly than under intermittent success, but
they also more frequently choose to make the optimum change. There
is some suggestion in Figure 4 that the latter difference becomes
more pronounced over blocks.

Ignoring group success, there is a curvilinear relationship between
status and the tendency to prefer an appropriate change as well as to
prefer the optimum change. This occurs irrespective of the direction of
the change. Figures 5 to 8 indicate that in nine of the twelve cases
the $\underline{S}$s in R-1 and R-4 are most responsive to an appropriate change and
to the change with maximum value for the group. Furthermore, in almost
every case it appears that $\underline{S}$s in R-1 are more sensitive to the appropriate-
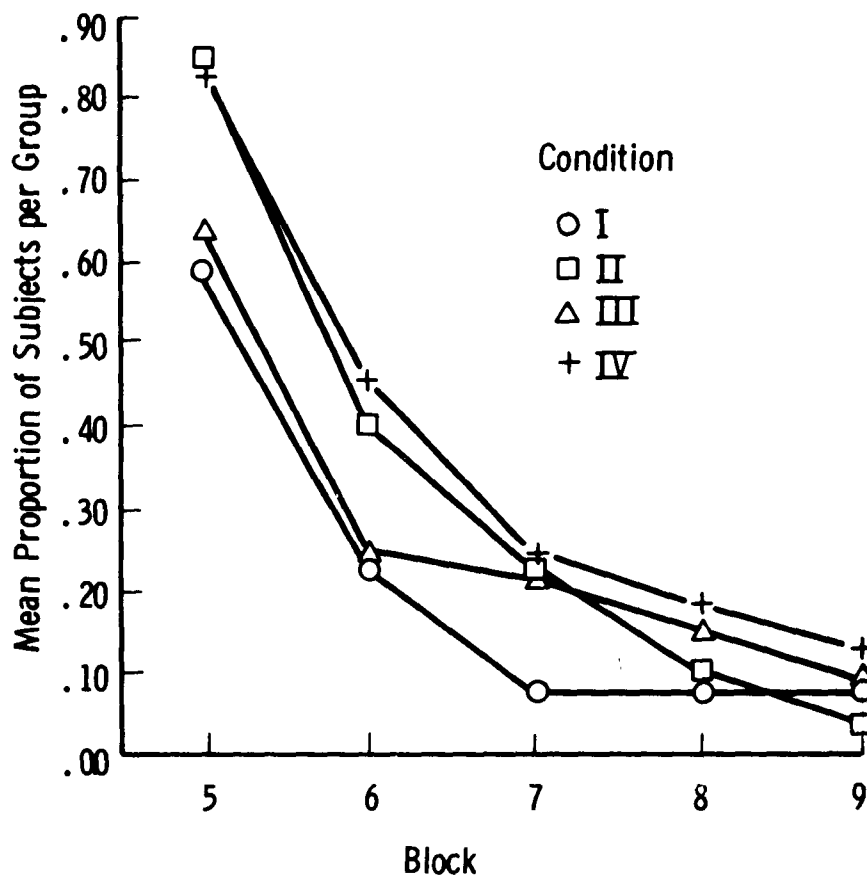ness of a change than those in R-4.

]

FIGURE 3.
Mean proportion of subjects per group who vote to
maintain the same status assignments ("no")
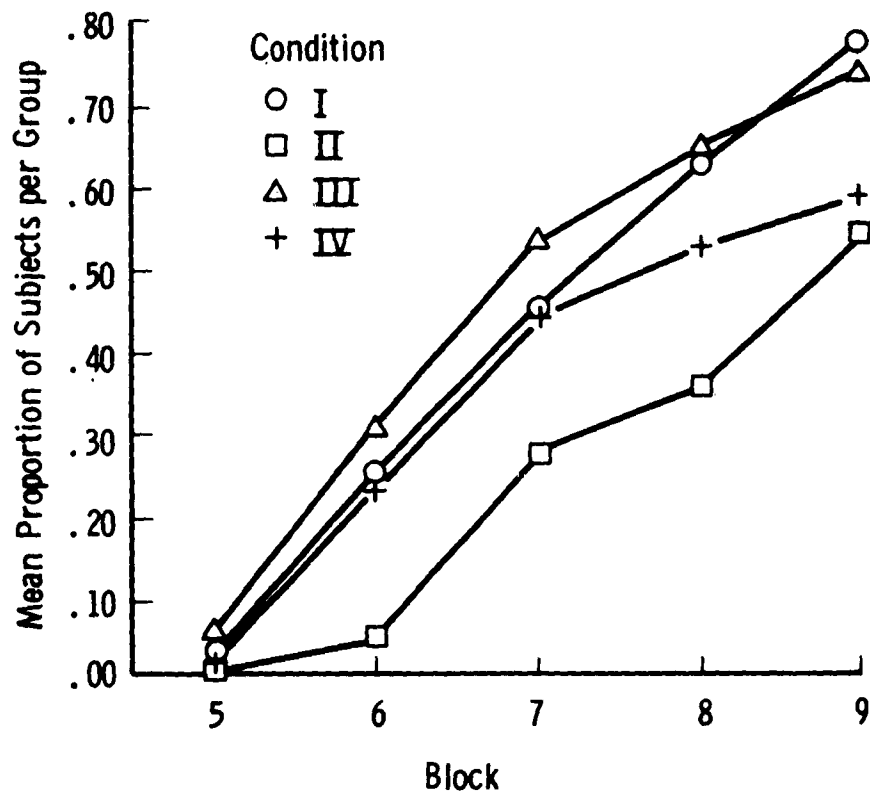when a change is appropriate.

FIGURE 4.
Mean proportion of subjects per group who
prefer the optimum change.

Table 7

Summary of the analysis of variance of transformed proportions
of members per group (angle transformation) preferring not
to make an appropriate change.

Source	df	MS	F
Direction of Change (DC)	1	1.109	1.225
Group Success (GS)	1	4.927	5.444*
DC X GS	1	0.017	-
Error (b)	36	0.905	-
Blocks of trials (B)	4	22.231	86.841****
DC X B	4	0.090	-
GS X B	4	0.875	3.420**
DC X GS X B	4	0.181	-
Error (w)	144	0.256	-
Total	199		

*P<.025
**P<.01
****P<.001

Table 8

Summary of the analysis of variance of transformed proportions
of member per group (angle transformation)
preferring optimum change.

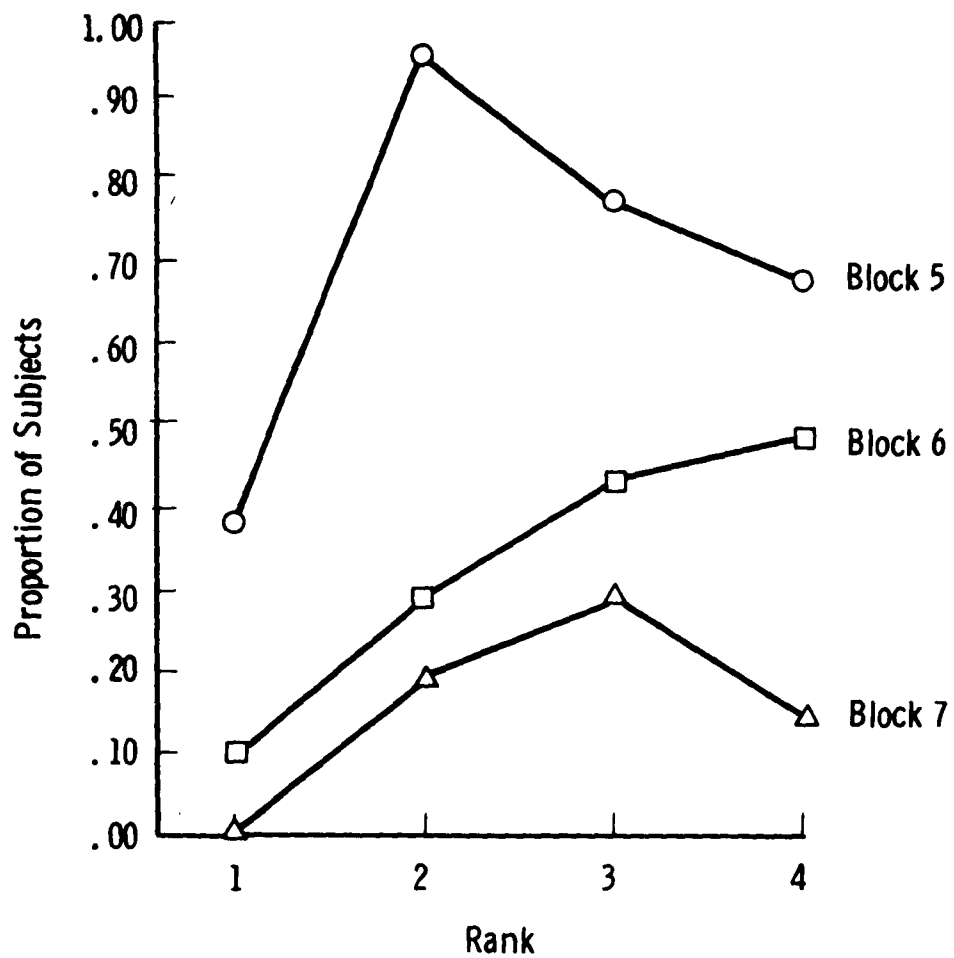| Source	df	MS	F
Direction of Change (DC)	1	1.269	-
Group Success (GS)	1	9.786	5.515*
DC X GS	1	0.032	-
Error (b)	36	1.774	-
Blocks of trials (B)	4	20.912	70.555****
B X DC	4	0.433	1.461
B X GS	4	0.438	1.479
DC X B X GS	4	0.054	-
Error (w)	144	0.296	-
Total	199		

*P<.025
****P<.001

FIGURE 5.
Proportion of subjects in different statuses in Conditions
I and II who prefer to have the most discrepant member
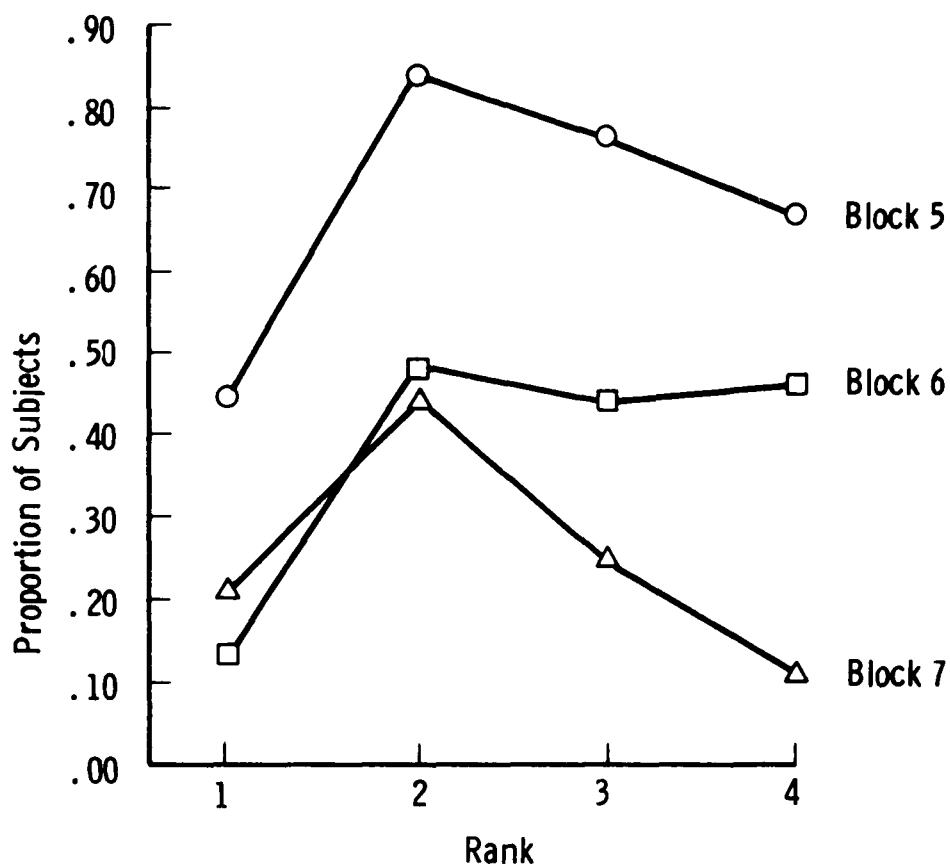remain in the same status (R-1).

FIGURE 6.
Proportion of subjects in different statuses in Conditions
III and IV who prefer to have the most discrepant
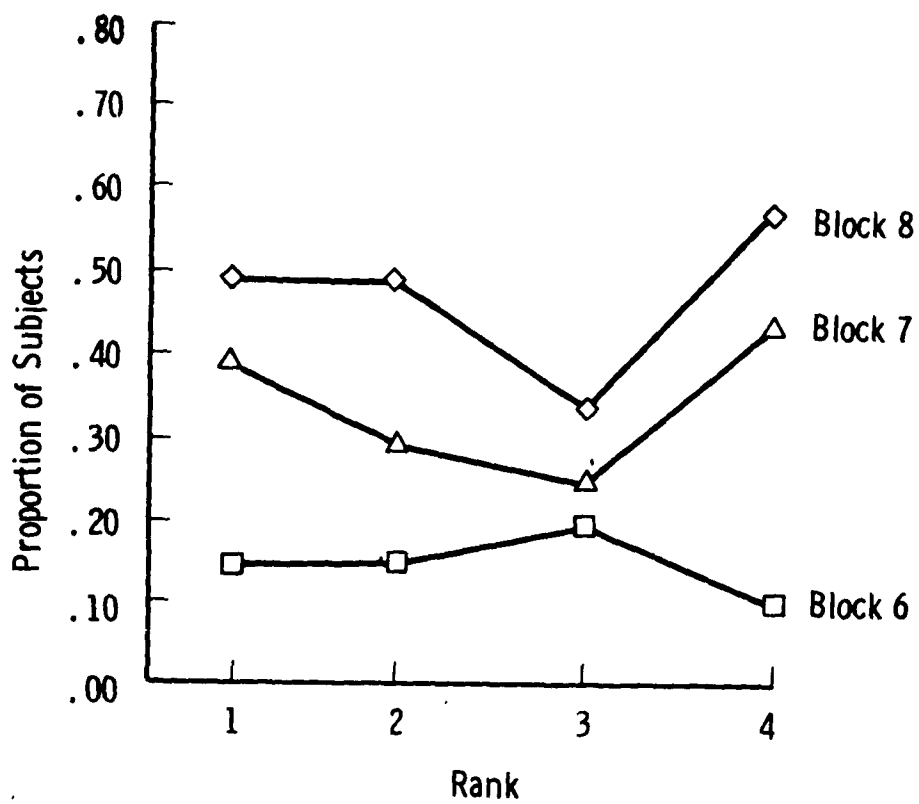member remain in the same status (R-4).

FIGURE 7.
Proportion of subjects in different statuses in Conditions
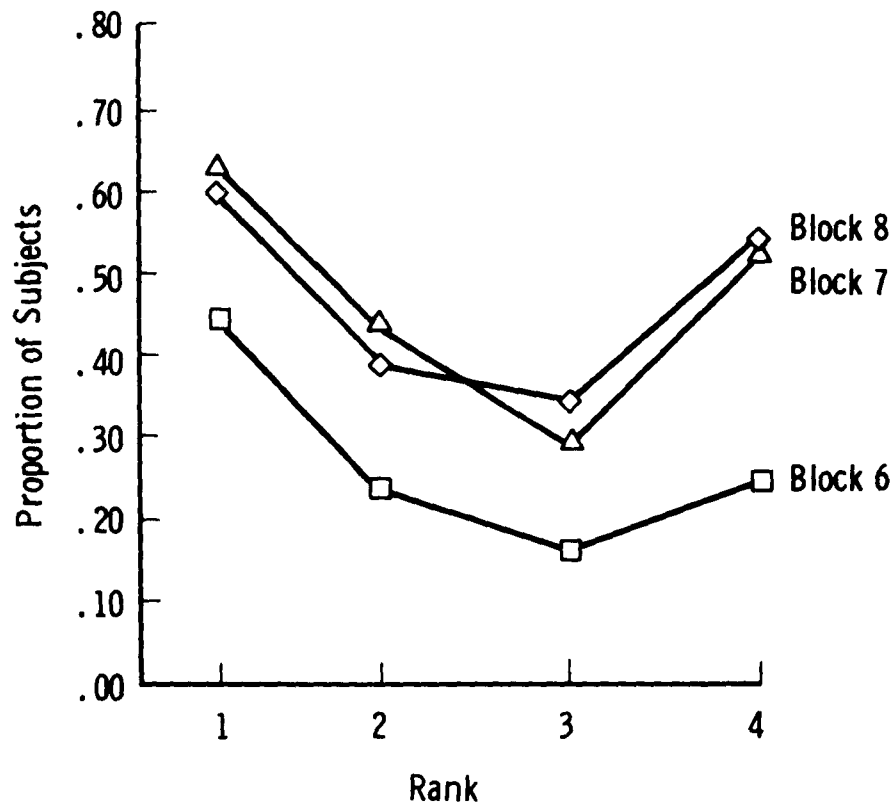I and II who prefer the optimum change

FIGURE 8.
Proportion of subjects in different statuses
in Conditions III and IV who
prefer the optimum change.

2. <u>Status and Participation in Change Discussion</u>. When a unanimous
vote to exchange members among statuses occurred, $\underline{S}$s discussed what
changes to make for 2-3 minutes until agreement was reached. No
group failed to reach a consensus well within this interval. $\underline{E}$
ranked $\underline{S}$s for the amount of participation in the discussion. On
several occasions $\underline{E}$ was unable to make this ranking due to the press
of other work. The rankings as a function of status are presented in
Table 9 for 35 of the 39 experimental groups which changed. Clearly
amount of participation was directly associated with status. This is
consistent with past findings relating status to participation (Bales,
1952) and indicates that the induced hierarchy was effective in
channeling influence regarding group decisions. Interestingly enough,
the same relationship seems to hold between initial rank and participa-
tion during discussion of the second change. By this time most members
who were initially R-1 had been reduced in status. However, there was
still some tendency for them to be the highest participators.

3. <u>General Structural Changes</u>. When R-1's level of success in Conditions
I and II markedly declines, R-2, R-3, and R-4 are brought to identical
levels. Likewise, in Conditions III and IV, when R-4 improves sharply,
R-1, R-2, and R-3 are moved to a common level. Thus, aside from past
success, there are no criteria for positioning the other three members
when the member in R-1 or R-4 is being changed. If past successful
performance is important in distributing members among positions, $\underline{S}$s
with identical levels of apparent performance should tend to maintain
the same initial status differences among themselves while relocating
the member in R-1 or R-4. This implies the following exchange of
statuses when the optimum change is made: In Conditions I and II, when
the $\underline{S}$ in R-1 goes to R-4, the $\underline{S}$ in R-2 goes to R-1, the $\underline{S}$ in R-3 to R-2,

Table 9

Frequency with which $\underline{S}$s in Different Initial Statuses Ranked
First to Fourth in Amount of Participation in
Discussion of Change

Initial Status	Participation Rank			
	First Change			
	1.0-1.5	2.0-2.5	3.0-3.5	4.0
1	18	12	4	1
2	9	9	13	4
3	4	7	16	8
4	4	7	12	12
	Second Change			
1	5	5	1	0
2	3	3	4	1
3	2	0	7	2
4	2	1	5	3

and the $\underline{S}$ in R-4 to R-3. In Conditions III and IV, when R-4 is moved
to R-1, the $\underline{S}$ in R-1 goes to R-2, the R-2 $\underline{S}$ goes to R-3, and the R-3
$\underline{S}$ goes to R-4 Thus, when the $\underline{S}$ in R-1 is shifted to R-4 the other
three $\underline{S}$s each move up one rank; when the $\underline{S}$ in R-4 is shifted to R-1,
the others each move down one rank.

The tendency to maintain initial differences in status seems to
exist under both conditions of change. However, it appears to be much
stronger in Conditions I and II than in III and IV. During the optimal
change in Condition I, seven of the nine groups maintain initial dif-
ferences in rank among the other three members. Thus, when R-1 is

assigned 20 points, the others each move up a slot. Similarly, in Condition II, all eight of the groups while making an optimal change maintain initial differences in ranks among the other members. However, when the optimal change requires R-4 to be given 100 points, the initial differences in rank among other members are more likely to change. Only four of the ten groups in Condition III and five of the eight groups in Condition IV which make an optimal change maintain initial differences in rank among other members. A x^2 analysis of this difference in frequency as a function of the direction of optimal change is significant at less than the .02 level ($x^2 = 5.931$, df = 1). The proportion of S̲s in each status who prefer maintaining initial differences among the other three members while making the optimum change is shown in Table 10.

Table 10

Proportion of S̲s Who Prefer to Maintain Initial Status
Differences on the Block when the Optimum Change is Made

Rank	Condition	
	I & II	III & IV
1	.50	.32
2	.33	.21
3	.50	.27
4	.40	.32

Discussion

<u>Changes in Status</u>. It has been demonstrated that a decrease in group
success inhibits appropriate and optimum status changes. This is
most clear when voting behavior and status change preferences are
examined. The determinants of the speed with which a group responds
to incongruities between an occupant's apparent performance and task
requirements associated with his status cannot at present be specified
with any certainty. However, the following hypotheses may be
entertained: (1) The operations involved in the scheduling of indi-
vidual success under intermittent group success make incongruities
more difficult to discriminate than under continuous group success.
To achieve intermittent group success within a five trial block
necessitated having a clump of three or four individual successes
on two trials and one on the remaining three trials (see Table 1).
Perhaps it is harder to discern a decrement in R-1 or and increment
in R-4 under these stimulus conditions than when individual success
is more evenly distributed within a block. (2) A decrease in group
success poses problems which distract attention from an incon-
gruity between status and performance and thus interferes with the
perception of a potentially beneficial change.

Both these hypotheses may be partially tested by an anlaysis
of several items on the post-experimental questionnaire. At the
conclusion of the session S̲s were asked to evaluate each others'
performance over the first, the second, the third and the final
quarter of the experiment. If a more difficult discrimination
or if distraction is involved, S̲s under intermittent group success
should change their evaluation of R-1 in I or R-4 in II later
than S̲s under continuous group success. A preliminary analysis of
the relevant items indicates that there is no reliable difference in

the evaluation of R-1 or R-4 during any of the quarters as a function
of group success. Nevertheless, neither of these two possibilities
can be totally written-off. Post-experimental inquiries assess a $\underline{S}$'s
memory of past performance. This may be subject to distortions which
make it impossible to infer that differences in discriminability or
inattention occurred 20-30 minutes earlier. Furthermore, evaluations
of performance in terms of quartiles may not be fine enough to get at
the real differences which exist.

(3) Problems that hinder a group in improving the expected value
of its outcome are handled in a particular sequence. This order
reflects the priority or importance assigned to each problem by
members. Meeting the minimal performance criterion is a problem of
the first importance. No points are obtained unless this standard
is achieved. Until some remedial action is attempted, little concern
may be given to problems of lower priority, e.g., incongruities. Thus,
not until members have tried to raise the general level of performance
will they be prone to deal with an existing incongruity. Furthermore,
members may perceive that a change in status would threaten the success
of an overall effort to increase group success. Not wishing to risk
alienating any member, the group avoids such changes until a general
effort has been made, successfully or unsuccessfully.

There are marked differences in preferences for appropriate and
optimum changes as a function of status. The curvilinear relationship
obtained eliminates a few very reasonable _a priori_ hypotheses. The
first states that in cooperative groups, sensitivity to beneficial
changes is directly related to the amount of responsibility for the
outcome. This would predict a monotonically increasing preference for
appropriate and optimum changes as status increases. The second asserts

that the preference for appropriate and optimum change will increase among members who expect their status to be raised and will decrease among those who expect their status to be lowered. Thus, the member in R-1 in I and II should have the strongest inclination to avoid change while the member in R-4 in III and IV should be most strongly inclined toward change. Neither set of expectations is borne out by the data.

There are, however, two factors that affect $\underline{S}$s in R-1 and R-4 more than $\underline{S}$s at other positions and are likely to make them more attentive to change. First, R-1 and R-4 $\underline{S}$s by their extreme positions are potentially subject to more extensive shifts than $\underline{S}$s in other positions. Second, within all four experimental conditions, the largest incongruities occur at R-1 and R-4. After block 4 in I and II, R-1's success suffers a 70% decline while R-4 enjoys a 30% increase; in III and IV, R-1 declines by 50% and R-4 increases by 50%. Within each condition the changes in the level of success for R-2 and for R-3 are less marked. Both the extent to which a member may be displaced and the amount of incongruity which exists for him are likely to be positively related to his attentiveness to or concern for appropriate and optimum changes. This could well account for the curvilinear relationship between status and preference for status changes. At the same time amount of responsibility for the outcome, especially in a cooperative setting, cannot be ignored (Pepitone, 1952). The fact that R-1's influence over the outcome is greater than R-4's may account for $\underline{S}$s in the former position having a somewhat stronger preference for appropriate changes.

Not only are there differences among statuses in the advocacy of change, but there are also distinct preferences about who should be moved. The two control conditions, since no change is appropriate,

provide a baseline for change preferences which is independent of incongruities between apparent performance and task requirements. Again any hypothesis predicting a monotonic relationship between status and the preference for displacing occupants must be rejected. There is a decided predilection for exchanging occupants of the two intermediate statuses. Few changes are advocated for occupants of the immediately adjacent status. Perceptually, it would seem that differences in apparent performance between R-2 and R-3 are more difficult to discriminate than differences between R-1 and R-2, and between R-3 and R-4. Thus, apparent performance or success at intermediate statuses are assimilated to each other but apparent performance at the extremes are contrasted with that of their adjacent status. Again attention may play an important mediating role. Exceptionally superior or inferior performance, or performance of members in extreme statuses, irrespective of its quality, may elicit more attention than mediocre performance or performance at intermediate statuses. Thus, frequent comparisons may be made between R-1 and R-2, and between R-4 and R-3, but few between R-2 and R-3.

The tendency for members not directly involved in an optimal change (R-2, R-3, and R-4 in I and II; R-1, R-2, and R-3 in III and IV) to maintain initial differences in status may be an interesting instance of the principle of least effort operating in a changing group structure. Still more intriguing, it was found that the strength of this tendency depends on the direction of the optimal change. At present one can only speculate as to reason for this difference. In terms of performance, no one member in Conditions I and II rises to replace the member in R-1. However, in III and IV, a member's performance does supersede that of the $\underline{S}$ in R-1 and that of $\underline{S}$s in the other two ranks. Under the former

conditions initial status differences tend to be maintained to a greater extent than under the latter. Table 10 indicates that R-1 has a relatively strong preference for maintaining initial status differences while making the optimal change. If his influence on the change discussion decreases when he is clearly superseded in apparent performance by another member then the likelihood of maintaining initial status differences among the other ranks would be less in III and IV than in I and II. Other factors, however, cannot be ruled out. In I and II, R-2, R-3, and R-4 are at a common level of success of 60%. In III and IV the common success level is 40%. The higher the common level of success the more conservative may be the changes; or the lower the common level of success the more likely members are to perceive incongruities when none exist. Finally, frustration and antagonism are less likely to occur when members at identical levels of success are all being raised than when they are being reduced in status. Past success as a criterion for present placement may be more acceptable in the former than in the latter condition. Indeed, concensus regarding any criterion for positioning Ss performing at identical levels may be more difficult to attain under the latter condition. In any case, more frequent disruption of initial status differences may be due to the ill feeling generated by the necessary reduction of R-1, R-2 and R-3 Ss when the member initially in R-4 goes to R-1.

Summary

This study examined efforts by members under continuous or under intermittent group success to induce a status change which would maximize the value of group performances. Cooperative four man status hierarchies performed a group reaction time task. Members were to react quickly enough to prevent the appearance of a failure signal. The latter was controlled by $\underline{E}$, appearing according to a fixed schedule. Group success occurred when at least two members beat the signal (the group was eligible to receive points toward a prize). The extent of success (number of points received) depended on the status of the successful individuals, high status members contributing more to the group total than low status members. Following each block members voted privately on desired status reassignments. On early blocks individual success was scheduled to produce the optimum fit between an occupant's apparent performance and that deemed appropriate to his status. Following block four group success became intermittent for 20 groups and remained continuous for another 20. Concurrently, a discrepancy was induced in each group between the apparent and appropriate frequency of success at one of the four statuses by increasing or decreasing apparent success for a given member. Voting indicated that efforts at status reassignment which restore the fit between apparent and appropriate success occurred more rapidly and more frequently under continuous than under intermittent group success. Such efforts were curvilinearly related to status with occupants of extreme statuses making earlier and more frequent efforts than occupants of intermediate statuses.

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